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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,900	09/16/2003	Gerald S. Russell		5295

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EXAMINER

BITAR, NANCY

ART UNIT	PAPER NUMBER
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2624

DATE MAILED: 11/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/663,900

Applicant(s)

RUSSELL ET AL.

Examiner

Nancy Bitar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 11-16 is/are pending in the application.
- 4a) Of the above claim(s) 1-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 13-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 09/16/03.

- 4) ☒ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C.

121:

- I. Claims 1-12, drawn to measuring the location of an object, classified in class 382, subclass 154.
- II. Claims 13-16, drawn to icosahedral gantry structure, classified in class 345, subclass 473.

2. Inventions claim 1-12 and 13-16 are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination camera is used in the method of claim 1 where claim 1 does not define the same details as claim 13 that has separate utility such as the camera is omitted from the icosahedral gantry structure. See MPEP § 806.05(d).

The examiner has required restriction between subcombinations usable together. Where applicant elects a subcombination and claims thereto are subsequently found allowable, any claim(s) depending from or otherwise requiring all the limitations of the allowable subcombination will be examined for patentability in accordance with 37 CFR 1.104. See MPEP § 821.04(a).

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Applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

3. During a telephone conversation with Gerald S. Russell on November 04/2006 a provisional election was made **without** traverse to prosecute the invention of "Measuring the Location of Objects arranged on a surface using Multi-camera photogrammetry", application number 10/663900 claim 1-16. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-12 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claims 13-16 are examined.

*Note: An examination of this application reveals that applicant is unfamiliar with patent prosecution procedure. While an inventor may prosecute the application, lack of skill in this field usually acts as a liability in affording the maximum protection for the invention disclosed. Applicant is advised to secure the services of a registered patent attorney or agent to prosecute the application, since the value of a patent is largely dependent upon skilled*

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*preparation and prosecution. The Office cannot aid in selecting an attorney or agent.*

*A listing of registered patent attorneys and agents is available on the USPTO Internet web site <http://www.uspto.gov> in the Site Index under "Attorney and Agent Roster." Applicants may also obtain a list of registered patent attorneys and agents located in their area by writing to the Mail Stop OED, Director of the U. S. Patent and Trademark Office, PO Box 1450, Alexandria, VA 22313-1450*

### **Claim Objections**

4. Claims 14-16 are objected to because of the following informalities: the claim number should not be enclosed within parentheses so as to avoid confusion whether the number is considered the claim limitation or not. For instance, claim 14 can be written as following:

The apparatus of claim 13 in which up to twelve cameras may be located at the vertices of a regular icosahedral gantry structure surrounding the objects. Appropriate correction is required.

Regarding claim 15 is objected to because of the following informalities: the claim contains more than one sentence where the present office practice is to insist that each claim must be the object of a sentence. See MPEP 608.01 (m). Claim 15 must be written in the following form:

The apparatus of claim 14 where the objects are electrophysiological sensors arranged on the head of a subject, and one of the cameras is omitted

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from the icosahedral gantry structure so as to make room for the subject's body in order to establish the coordinates of the sensors.

### ***Drawings***

5. The drawings are objected to under 37 CFR 1.83(a) because they fail to show the camera back panel 48 in figure 4 as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

*Claim Rejections - 35 U.S.C. § 112*

6. The following is a quotation of the second paragraph of 35 U.S.C. § 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 14-16 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 14 the phrase "may be" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. As to claim 16, the phrase "so that it may be" also renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d). For instance, claim 14 can be written as following: The apparatus of claim 13 in which up to twelve cameras are located at the vertices of a regular icosahedral gantry structure surrounding the objects. Claims 15-16 are variously dependent from claim 14 and are thus similarly indefinite.

**MPEP § 2173.05(d) states that:**

**Description of examples or preferences is properly set forth in the specification rather than the claims. If stated in the claims, examples and preferences >may< lead to confusion over the intended scope of a claim. In those instances where it is not clear whether the claimed narrower range is a limitation, a rejection under 35 U.S.C. 112, second paragraph should be made. The examiner should analyze whether the metes and bounds of the claim are clearly set forth.**

7. Claim 16 recites the limitation " the icosahedral camera gantry" in line 1.

There is insufficient antecedent basis for this limitation in the claim. Is it one of

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the plurality of camera or all the cameras together that form a regular icosahedral gantry structure?

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 13-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Kriesel et al. (U.S. Patent No. 2004/0023612).

As to independent claim 13, Kriesel discloses an apparatus for measuring the location of objects arranged on a surface in space (the entire surface of the animal is recorded, this range camera configuration permits very accurate volumetric measurements as well as curvilinear and linear measurement, paragraph [0197]), comprising: a plurality of cameras arranged in a stationary array about the objects (figure 2-9 shows camera 1,2, and 3), each capable of forming an image of the scene containing the objects ( each range camera obtains a range image of the animal surface within its field of view, paragraph[0197]); and a data processing apparatus which implements a method to find the coordinates of the objects in the images( Each of the digital images are processed by the range image algorithm to obtain a three dimensional point cloud set. These points may be oriented somewhat arbitrarily with respect to a



given coordinate system note that the mesh algorithm is applied to each view data set to convert the arbitrarily-spaced point cloud data into a mesh surface with a grid coordinate system, paragraph [0221] and [0222]), to fit a parameterized mathematical surface congruent with the locations of the objects, to establish the correct mappings between observations of the various objects, (a surface from a set of discrete data points is known as the Marching Cube Algorithm. This algorithm is a table-based, surface-fitting algorithm for rendering surfaces in volume space. The basic idea is to march a cube through the volume containing the surface to determine if the cube, in a given position, is totally inside the surface, totally outside the surface, or intersecting the surface, paragraph [0134]), and to triangulate the exact three-dimensional coordinates of the objects (note that Once geometric fusion has been accomplished, a 3D triangulated mesh may be generated for the volume surface, paragraph [0049]).

As to dependent claim 14, Kriesel teaches the apparatus of claim 13 in which up to twelve cameras may be located at the vertices (the apparatus of the invention comprises three cameras and data processing techniques, paragraph [0421]) of a regular icosahedral gantry structure surrounding the objects (coordinate system such as cylindrical or spherical are also possible, paragraph [0421]; it is noted that a hollow spheroid shape, in geometric terms its is called a "truncated icosahedron".

As to dependent claim 15, Kriesel teaches the apparatus of claim 14 where the objects are electrophysiological sensors arranged on the head of a

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subject (A microprofilometer head having the objective lens and other optics is mounted on flexures and driven to execute reciprocal movement so as to scan the surface under test, paragraph [0104]), and one of the cameras is omitted from the icosahedral gantry structure so as to make room for the subject's body (FIG. 3-5 the invention, only two cameras, rather than the three cameras previously described are used, paragraph [0526]).

As to dependent claim 16, Kriesel teaches the apparatus of claim 15 in which the icosahedral camera gantry is mounted on a swinging pivot (figure 3-6), so that it may be lifted out of the way while the subject enters or exits the apparatus (figure 2-14, the target object enters the chute area from the right and proceeds into the central region where video camera 58,60,62 are positioned, paragraph [0522]).

### **Conclusion**

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Harvill et al (US 7,123,263) is cited to teach an automatic 3D modeling system and method are described in which a 3D model may be generated from a picture or other image. For example, a 3D model for a face of a person may be automatically generated. The system and method also permits gestures/ behaviors associated with a 3D model to automatically generate so that the gestures/behaviors may be applied to any 3D models.

Miller et al (US 6,926,660) is cited to teach system and method for placing a treatment component on a patient's head. The inventive device includes an attachment frame that attaches the treatment component to the patient's head. The attachment frame also includes a window. A receiving mechanism holds the treatment component to the attachment frame, and an alignment structure permits the treatment component to be positioned at a desired location on the patient's head. The inventive device also may include an isolator component capable of reducing sound to the patient's ears and/or reducing vibration of the attachment frame. The inventive may also include an electrical connector to send and receive data based on the treatment, and an adjustment structure that is capable of adjusting the device to each patient.

### **Inquiries**

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nancy Bitar whose telephone number is 571-270-1041. The examiner can normally be reached on Mon-Fri (7:30a.m. to 5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on 571-272-7695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nancy Bitar

11/04/06



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